

U.S. Patent Application No. 10/071,672
Reply to Office Action dated December 10, 2003

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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 1. (Currently amended) A lockable lockable elastic joint for an anthropomorphous robot
2 provided with a wrist and a handling organ, comprising a first part fastenable to the wrist of the
3 robot and a second part fastenable to the handling organ of the robot, characterised in that it
4 comprise said joint comprising:

5 a first coupling means between said parts that are suitable to maintain the same parts at a
6 pre-set distance and on planes parallel to each other, and second coupling means between said
7 parts suitable to allow in an elastic way or, as an alternative, to prevent mutual movements of said
8 parts along two directions parallel to the planes of the two parts and perpendicular to each other
9 and around an axis perpendicular to the aforesaid planes;

10 wherein said first and second parts have essentially a plane square shape with radial
11 extensions and said first coupling means are made up of spherical articulation connecting rods that
12 extend perpendicularly to the lying planes of the two parts and are hinged, each one into radial
13 extensions of said parts over them; and

14 wherein said second coupling means are made up of fluid-mechanic cylinders that extend
15 parallel to the lying planes of the two parts and are interposed, each one, between adjacent radial
16 extensions of said parts.

2. (Cancelled)

3. (Cancelled)

1 4. (Currently amended) Lockable elastic joint according to claim [[3]] 1, characterised in that
2 wherein said fluid-mechanic cylinders are fed with fluid at high pressure that locks them in central

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3 position or as an alternative with fluid at medium pressure that yieldingly thrusts them in said
4 central position.

1 5. (Currently amended) Lockable elastic joint according to claim [[3]] 1, ~~characterised in that~~
2 wherein said fluid-mechanic cylinders comprise pistons operating from opposite sides on a sliding
3 block that is fastened to one of two terminal stems of the fluid-mechanic cylinder, means being
4 provided to alternatively submit said pistons to fluid at high and at medium pressure in order to
5 lock and, respectively, to allow the elastic movement of said sliding block.

1 6. (Currently amended) Lockable elastic joint according to claim [[3]] 1, ~~characterised in that~~
2 wherein said fluid-mechanic cylinders comprise flexible membranes and pistons that are
3 alternatively subjectable to fluid at high and at medium pressure in order to lock and, respectively,
4 to allow the mutual elastic movement of terminal stems of the fluid-mechanic cylinder.

1 7. (Original) Lockable elastic joint according to claim 1, ~~characterised in that it~~ wherein said
2 joint comprises locking means that are suitable to lock the two parts to each other in any
3 decentralised position the one with respect to the other.

1 8. (Original) Lockable elastic joint according to claim 7, ~~characterised in that~~ wherein said
2 locking means comprises fluid-mechanic cylinders that are fastened to one of said parts and pads
3 that are fastened to the other one of said parts by interposition of small flexible stabilising plates.